SANSONIC

Digital Audio, Video and RF Wireless Mixer Amplifier Series HNB™

HNB™ Amplifier Systems
HNB-A (Audio), HNB-B (Video)
HNB-C (RF Wireless)

AUDIO

HNB-A
Audio Amplifier / Preamplifier
(stand-alone AUDIO system)

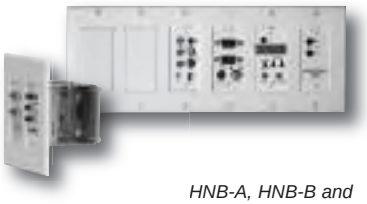
VIDEO / IR

HNB-B
Video / IR Control

RF WIRELESS

HNB-C
RF Wireless

HNB™ Digital Amplifiers . . .
flexible & affordable . . .
secure & fast installation . . .
simple & reliable . . .



HNB-A, HNB-B and HNB-C are all 2-gang systems and may be installed into 2, 4 or 6-gang 3.5" DEEP electrical boxes
Note: 2-gang Decora wall plates and screws are provided.

COMPLETE SYSTEM SOLUTIONS

The HNB™ concept:

The HNB system is flexible, easy-to-install, use, upgrade and maintain. It is an affordable solution for any room requiring integration of audio, video and wireless 'Soundfield' amplification. HNB supports a wide range of Audio and A/V applications with built-in compatibility to laptops, desktop computers, A/V projectors, VCR, DVD, DVR, iPOD, MP3, and microphone input sources for use in teaching and training environments. The HNB system is a common sense 'purpose built' solution for universities, colleges, K-12 schools and corporate training facilities. HNB fits your customer's budgets and planning needs and is created to keep pace with tomorrow's technologies.

In addition to A/V application support, the HNB system unifies all major emergency communications systems into a comprehensive and seamless solution to meet everyday needs. HNB is simple in its design and operation providing immediate benefit to Consultants, Contractors and End-users.

The HNB™ building blocks: A + B + C

HNB is a simple, modular 'plug and play' system integrating the most basic media communication room elements of Audio (A) + Video (B) + Wireless (C). Each HNB unit (A, B, C) interconnects using standard CAT5e UTP cable with a distance of up to 100 feet between! The HNB system is based on the installer friendly concept of 'hang and bang' = Simple, Fast, Affordable. It uses the most common device found throughout all building types in North America – the NEMA/UL rated electrical gang box. This allows the HNB to use the most inexpensive and widely available mounting and cabling options in the market and be totally secure while using literally no space in the room.

The HNB system always starts with the HNB-A AUDIO package. HNB-A is a 2-gang modular Mono or Stereo digital amplifier system equipped with an Amplifier and Preamplifier module. In addition to being an audio system, HNB-A provides I/O interconnections to critical room communication systems including; Fire and Alarm, Security, PA and Intercom (1v-70v), Archival or Recording systems, ancillary power amplifiers or 'control' audio systems. The power source of this versatile system is a low voltage Class 2 UL 24VDC power supply. The power supply is included with the HNB-A and by extension also powers HNB-B and HNB-C add-on systems using CAT5e UTP cable. *ONE power supply drives the complete HNB-A+B+C system.*

When VIDEO is required and/or IR control is desired the 2-gang HNB-B system is an easy 'plug-in' expansion. The HNB-B transmits VGA/RGB, S-Video, Composite video signals while providing a 'buffered loop through' VGA Monitor output for desktop computers. Video transmit and receive are accomplished via a single CAT5e UTP cable up to 150 feet to the AV Projector. The HNB-B system is powered via a single CAT5e cable from HNB-A.

When WIRELESS 'Soundfield' teacher amplification or ADA assisted listening (hard of hearing) and/or simultaneous 2nd language translation is essential to improve the education experience for Teachers, Students, Parents and the Community then add the 2-gang HNB-C system. The Wireless HNB-C can be a plug-in expansion to HNB A or HNB A + B at any time depending on your teaching, learning or room performance requirements. HNB-C is a RF based system providing up to two (2) channels of simultaneous transmit and two (2) channels of simultaneous receive stereo or mono communication to headsets, hand-held microphones, and headphones. All HNB headsets, headphones and microphones can be easily "paired" to any HNB-C enabled room in seconds. HNB-C uses RF Wireless technology to provide TOTAL mobility and freedom of movement throughout every square foot of classroom space. Teachers and students have no need to modify their behavior to effectively use the HNB system.

Sansonic Electronics USA LLC ■ 9950 E. Baldwin Place, El Monte CA 91737
■ (T) 626-454-8203 ■ (F) 626-433-1079 ■ www.sansonic.net

©2008 Sansonic - Printed in USA 1008
Specifications subject to change

AUDIO

HNB-A

Audio Amplifier / Preamplifier

(stand-alone AUDIO system)

Includes:

- Plug-in pre-amplifier card (HB-2PA)
- Plug-in amplifier card stereo/mono (HB-1S)
- 24VDC/2.5A power supply
- 2-gang metal chassis with backplane
- 2-gang Decora-style plastic wall plate
- Assorted plug-in connectors and hardware

Features & Capabilities

- Fits standard 3.5" DEEP 2-gang electrical box or 4-gang, 6-gang for expansion of HNB 'B' and 'C' units.
- (3) Audio inputs switchable (RCA, 3.5mm, Phoenix).
- Dual channel 25W Mono/Stereo Class D digital amp.
- Interface to any microphone system (wired or wireless by others) or Sansonic HNB-C.
- *Automatic Priority Override* to any Fire and Alarm system.
- *Automatic Priority Override* to any PA/Intercom or Mass Notification, EPA system from 1V – 70V.
- *Automatic Priority Override* to any Security system with built-in audible alarm.
- Audio line output to record or connect to ancillary audio power system.
- Power 4-8 ohm speakers or 25-70V speakers with optional HNB-70V2X.
- CAT5e UTP interface to expansion HNB-B (Video/IR) or HNB-C (Wireless) units.
- 24VDC/2.5A UL-CUL wall power supply / Class 2 low-voltage.
- HNB-A power supply extends power to HNB-B and HNB-C via single CAT5e cable up to 100 feet between units (A,B,C).
- Multiple LED visual status indicators for signal and power for each channel and module.

VIDEO / IR

HNB-B

Video / IR Control

Includes:

- Plug-in IR receive card (HB-IR)
- Plug-in video transmit card (HB-V)
- Video receiver box (HB-VRx)
- Hand-held IR remote control(HB-IRRC)
- 2-gang metal chassis with backplane
- 2-gang Decora-style plastic wall plate
- Assorted plug-in connectors and hardware

Requires: Equal quantity HNB-A (1:1 ratio)

Options:

- *Available with VIDEO ONLY: order HNB-B1*
- *Available with IR ONLY: order HNB-B2*

Features & Capabilities

All features of HNB-A (see list at left) + HNB-B (below)

- Receives power from HNB-A unit via one CAT5e UTP cable up to 100 feet.
- Multiple Video inputs: VGA, S-Video, Composite video.
- Video transmission via single CAT5e UTP cable up to 150 feet.
- VGA buffered loop through Monitor output.
- HNB-VRx Video Receiver with discrete output cables for direct connection to Projectors with VGA, Composite and S-Video inputs.
- IR remote control with LED extender (On/Off, Volume +/-, Bass/Treble, Balance, Mute).
- HNB-VRx Video Receiver with high visibility LEDs for status of power and signal at projector.
- Video signal priority override for simultaneous use with VGA computer input.
- Compatible with Laptop or Desktop PC operation (IBM or Apple).

RF WIRELESS

HNB-C

Wireless Receive / Transmit

Includes:

- Plug-in 2-channel RF wireless receiver card (HB-Rx)
- Plug-in 2-channel RF wireless transmit card (HB-Tx)
- Teacher headset microphone (HB-TM1)
- Student hand held microphone (HB-SM1)
- Student ADA Receiver microphone with 3.5mm jack & earphones (HB-RU)
- 3 battery chargers
- 2-gang metal chassis with backplane
- 2-gang decora-style plastic wall plate

Requires: Equal quantity HNB-A (1:1 ratio)

Options: *Also available as 'RECEIVE ONLY: order HNB-C1*

Features & Capabilities

All features of HNB-A (see list at left)+ HNB-C (below)

- Receives power from HNB-A via one CAT5e UTP cable up to 100 feet (power & signal / two way).
- Automatic secure ID link and channel codes selection allows up to 2,000 rooms without interference or collision between rooms.
- Total freedom of movement in every square foot of classroom space with clear RF signal coverage (40 foot radius / 80 foot diameter in X-Y-Z axis). HNB-C eliminates DEAD SPOTS.
- (2) RF Transmit channels for ADA assisted listening and / or simultaneous 2nd language translation to unlimited number of headphones in Mono or Stereo.
- (2) RF Receive channels for Teacher, Student, Guest, Administrator use with simultaneous operation and ability to automatically 'duck' audio during AV presentation (adjustable levels).
- Comfortable and easy to use headsets and headphones which "pair" in "seconds" to any HNB-C enabled room throughout the campus or school district.
- Compact, lightweight 'over the ear' Teacher headset with R or L side use with flexible boom, 180 degree swivel cardioid microphone and LED status (Blue) providing superb speech intelligibility with 6-8 hours use before recharge.
- Compact HB-RU Receiver with 3.5mm jack allows use of HAC (Hearing Aid Compatible) headsets or users personal headphones (iPOD, MP3) with channel and volume adjustments.
- UL / DOE Energy Star rated battery chargers with USB mini port have fast 100% recharge in (90) minutes
- FCC certified.

Audio Modules (included with HNB-A)

HB-1S Amplifier Module

- Robust digital class-D architecture with better than 85% efficiency.
- Dual channel 25W into 4-ohm / 12W at 8-ohm operation.
- Mono or Stereo operation with full bandwidth operation 20Hz - 20kHz.
- Fits 2-gang E.O. Box (3.5"DEEP) with Decora wall plate.
- Automatic over current and over temperature protection.
- Manual front volume controls for R + L channels.
- IR control of each channel's volume, bass, treble, balance (See HB-IR).
- Visible active power status LED's for each channel (Green).
- Power 24VDC/2.5A from common UL wall power supply.

HB-2PA Pre-amplifier

- Stereo or Mono operation at full 20Hz - 20kHz bandwidth.
- Multiple audio source inputs via common phoenix, 3.5mm, RCA terminations.
- Audio source selection via front slide switch (A+B+C).
- Fits 2-gang E.O. Box (3.5"DEEP) with Decora wall plate.
- AM/FM 'RF' and audible noise suppression.
- Signal-to-noise at 85dB and sensitivity at -16dBu.
- Automatic 'ducking' 0db to -50db (off) with smooth transition.
- Manual front volume controls for audio and microphone channels.
- IR control of each channel's volume, bass, treble, balance (see HB-IR).
- Visible active power status LED (Green).
- Power 24VDC/2.5A from common UL wall power supply.

Video Modules (included with HNB-B)

HB-VRx Video Receive Box (with cables)

HB-V Video Module (includes HB-VRx Video Receive Box - below)

- Supports multiple video source inputs: VGA, Composite video, S-Video.
- Override priority to 'Video' inputs allows simultaneous use with VGA source.
- VGA buffered loop through Monitor output for Desktop PC use.
- Fits 2-gang E.O. Box (3.5"DEEP) with Decora wall plate.
- AM/FM 'RF' and audible noise suppression.
- Signal-t- noise at 85dB and sensitivity at -16dBu.
- Video transmission via CAT5e UTP up to 150 feet / 45M .
- Operational bandwidth up to 350MHz.
- Video differential gain / phase at 2%.
- Attenuation loss at 1dB at 300feet / 1MHz.
- Maximum capacitance at 20pf/foot UTP and 75-100 ohm impedance matching.
- Visible active 'Power' status and 'Video Signal' LEDs (Green).
- HB-VRx video receiver provides discrete cables for VGA, S-Video and Composite video connections to projector (12"+ length).
- Power 5V nominal via HNB-A common 24VDC/2.5A power supply.

HB-IRRC Remote & HB-IRE extension cable

HB-IR IR Module (includes HB-IRRC remote control and HB-IRE IR extension cable below)

- High visibility 4-character, 7-segment LED display.
- Fits 2-gang E.O. Box (3.5"DEEP) with Decora wall plate.
- Multi-function micro control operation for bass, treble, balance, volume, mute, on/off.
- Visible active 'Power' status LED (Green).
- Durable hand-held remote control using common AA batteries.
- Full operation up to 50 feet / 15 meters at 45 degree off axis.
- Controls for Power, Volume +/-, Select Input (1, 2, 3), Mute All.
- 3.5mm mini jack for Headphone.
- 3.5mm output jack for IR LED extension cable (4 foot length)
- Manual soft push buttons for controlling On/Off, Volume (+/-), Balance, Bass and Treble.

Power 5V nominal via HNB-A common 24VDC/2.5A power supply.

RF Wireless Modules (included with HNB-C)

HB--Rx Wireless 2-channel RF RECEIVER Module

- (2) RF Receive channels with distinct, secure ID link and code selection supporting up to 2,000 room installs without interference or collision.
- RF Signal coverage with 40 foot radius / 80 foot diameter in X-Y-Z axis – eliminates DEAD SPOTS.
- Simultaneous broadcast of (2) channels to HNB-A amplifier for exceptional speech intelligibility.
- Single CAT5e low cost, simple link and integration with HNB-A audio sources and amplifier.
- Fits 2-gang E.O. box (3.5" DEEP) with Decora wall plate (provided).
- Front panel visible status LED's for Power and Pairing (Blue/Red) with On/Off push button activation.
- Secure IrDA (Infrared Data Association) pairing for (2) channels in under (30) seconds.
- Power 5V nominal via HNB-A common 24VDC/2.5A power supply.

TM1 Teacher Headset Microphone

- Comfortable lightweight ergonomic design for over-ear use (R or L) with 180° swivel microphone with bright Blue status LED.
- No wires or battery pack, (6-8) hours use, (90) minute fast recharge.
- Total FREEDOM and MOBILITY in every square foot of room.

SM1 Student Hand-held microphone

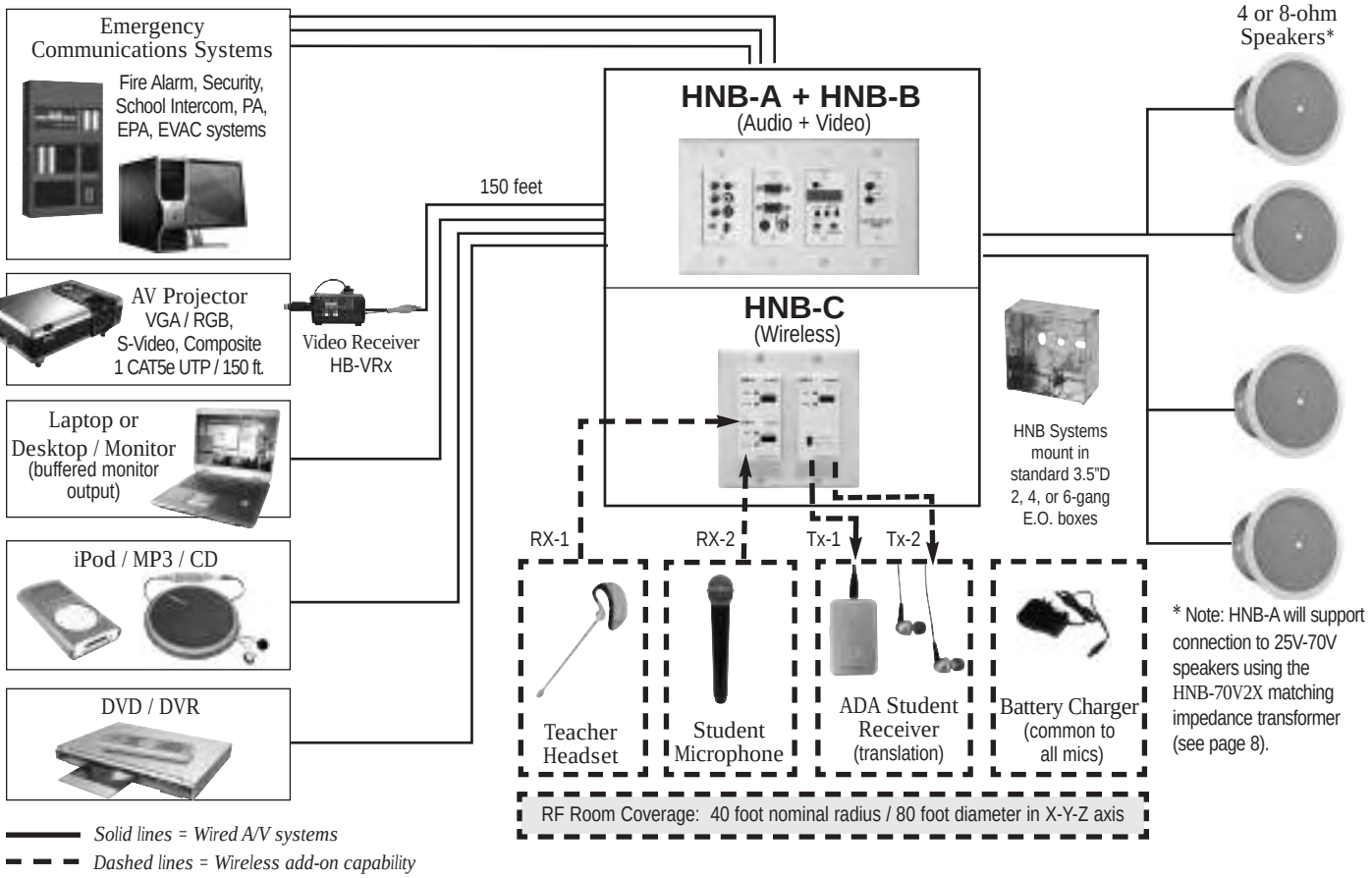
- Robust simple to use for Students and Teachers. Will not drop coverage due to handling.
- Pairs in seconds to any HNB enabled room.

HB--Tx Wireless 2-channel RF TRANSMIT Module

- (2) RF Transmit Channels broadcasting the HB-Rx signals to 'unlimited' number of users with HB-RU receive units supporting ADA 'assisted listening' and 'hard of hearing' users.
- Supports live ad-hoc 2nd language translation activated by front panel slide switch.
- RF Signal coverage with 40 foot radius / 80 foot diameter in X-Y-Z axis - eliminates DEAD SPOTS.
- Secure IrDA (Infrared Data Association) pairing for (2) channels in under (30) seconds to unlimited number of HB-RU receivers.
- Front panel visible status LED's for Power and Pairing (Blue/Red) with On/Off push button activation.
- Power 5V nominal via HNB-A common 24VDC/2.5A power supply.

HB-RU Student receiver with Headphone

- (2) channel RF receiver with channel selection, On/Off buttons and 3.5mm headphone jack compatible to most headphones
- Mono or Stereo operation.
- Supports ADA – Assisted Listening and 2nd Language translation in the classroom with unlimited number of units paired to HNB Tx module.


Emergency Communications Systems
Fire Alarm, Security, School Intercom, PA, EPA, EVAC systems
AV Projector
VGA / RGB, S-Video, Composite
1 CAT5e UTP / 150 ft.
Video Receiver HB-VRx
150 feet
Laptop or Desktop / Monitor (buffered monitor output)
iPod / MP3 / CD
DVD / DVR
HNB-A + HNB-B
(Audio + Video)
HNB-C
(Wireless)
4 or 8-ohm Speakers*
HNB Systems mount in standard 3.5"D 2, 4, or 6-gang E.O. boxes
RX-1
RX-2
Tx-1
Tx-2
Teacher Headset
Student Microphone
ADA Student Receiver (translation)
Battery Charger (common to all mics)
RF Room Coverage: 40 foot nominal radius / 80 foot diameter in X-Y-Z axis
Solid lines = Wired A/V systems
Dashed lines = Wireless add-on capability

* Note: HNB-A will support connection to 25V-70V speakers using the HNB-70V2X matching impedance transformer (see page 8).

Benefits of HNB™ RF Wireless Technology:

- HNB 'secure link' RF wireless technology permits an unlimited number of rooms on the same campus to be equipped with HNB RF wireless Soundfield teacher / student / translator amplification without interference or collision between adjacent rooms.
- Provides TOTAL MOBILITY and FREEDOM of movement for the Teacher (or Student) throughout the classroom without having to modify behavior to avoid 'dead spots'.
- Teacher headset will 'pair/bond' within seconds of entering the room and is completely wireless requiring no bulky body pack or tangled/cumbersome wires.
- Installation of up to (4) independent RF Transmit and Receive channels (HNB-C) is accomplished in under *(30) minutes! Termination* to HNB-A Audio system with power source is via a single CAT5e cable.
- HNB RF Wireless system eliminates confusing, cumbersome, and time/cost consuming calibration and set up procedures to achieve a working system. RF Technology means lights, sunshine and line of sight are never a concern!

Additional HNB-A, B and C Applications:

HNB is designed to meet the most complex AV – Communication system requirements with simplicity and common sense. HNB is 'fit for purpose' in most small to medium size room applications (as noted below) with a guiding focus on 'price versus performance' and the value its users derive relative to overall cost to purchase, install, maintain and use.

The HNB-A, HNB-B and HNB-C units operate as a system or when needed are flexible by design to accommodate the needs of designers and customers to meet a wide array of common commercial facility applications. These include but are certainly not limited to: ALL ***EDUCATION*** *classrooms, laboratories, libraries, offices, gyms, lecture halls;* ***CORPORATE*** *boardrooms, conference rooms, break-out areas, briefing centers, lobbies, private offices;* ***ENTERTAINMENT*** *theaters, backstage dressing rooms, green rooms, practice rooms, stadium skyboxes, concession stands,* ***RETAIL*** *stores, restaurants and salons;* ***HOSPITALITY*** *rooms;* ***CHURCH*** *multi-use, overflow areas;* ***HEALTHCARE*** *surgery or recovery, lobbies, doctors offices, administration areas and wherever a complete communication package for audio and video with wireless add-on capability is desirable.*

Type
2 Channel Mixer Amplifier
Architecture
Digital Class-D amplifier, Microcontroller

Mains Input Power
100-240VAC, 50-60Hz
Input Power (to HNB™)
24VDC/2.5A regulated switching wall supply, 2.5A, FCC, UL, CUL, CE listed (provided).
Output Power (from HNB™)
25W Peak 4Ω per channel 12W RMS continuous 4Ω per channel.

Audio Performance (HNB-A)
Frequency Response: 20Hz - 20kHz (± 1.5dB)
THD + N: ≤ 1.0% at 1kHz rated output, ≤ 0.1% at 1kHz at 10W 4Ω
Signal to Noise Ratio: 90dB A-weighted (band pass: 20Hz-20kHz)
Channel Separation: 60dB
Dynamic Range: 100dB
Input Sensitivity & Impedance: Program: 0.775V, 10kΩ electronically balanced, with RF filter (ferrite).
Outputs (R + L): 4Ω (optimum) or 8Ω, 25V /70V with optional transformer model HNB-70V2X.
Output Regulation Controls:
- Less than 2dB, no load to full load at 1kHz.
- Master Override (MO) audio level 0-1V POT.
- Master Override (MO) voltage sensitivity 1V-70V POT.
- Master Override (MO) delay (time sec) POT.
- Volume gain POTS on Preamp and Amp.
- Treble and bass POT.
- Power On/Off soft push button.
- Manual 'Duck' (1 to -50dB) for Mic input.

Controls-IR Remote (HB-IR, HB-IRRC):
- Volume (+/-, R+L), Mute, Balance (R+L), On/Off
- Redundant manual soft push buttons.
- HB-IRRC provided with (2) AA batteries.

Video Performance (HNB-B): HB-V, HB-VRx
- Supports VGA, SVGA, XGA , WXGA computer video to VESA standard.
- Supports NTSC, PAL and SECAM video standards.
- Output transmission via CAT5e meeting ANSI /EIA / TIA 568B standard.
- Operational bandwidth up to 350MHz.
- Horizontal frequency 15-126 kHz.
- Vertical frequency 43-200 Hz.
- Sync signal compatible with TTL level 5V / 3.3V.
- Power at 5VDC nominal from 24VDC/2.5A wall supply (HNB-A).
- Video differential gain / phase at +/- 2%.
- Attenuation loss rated at 6 dB at 1,000 feet at 1MHz typical UTP CAT5e.
- Maximum capacitance at 20pf/foot UTP.

RF Wireless Receive Performance (HNB-C): HB-Rx
- (2) RF Receive channels with automatic 'secure link' selection
- RF antenna coverage 40 foot radius / 80 foot diameter nominal X-Y-Z axis
- RF Frequency hopping modulation in 2.4GHz ISM band
- 802.11 WiFi interference avoidance algorithm (GSM / CDMA)
- RF data transmit speed up to 2Mps with audio latency delay <2msec
- Signal-to-Noise >55dB
- Sensitivity >80dBm
- Audio Frequency 200Hz to 8KHz @ 44.1k sample rate 16 bit resolution
- Audio Distortion THD <1% at 1KHz
- Visual status LED's (Blue / Red)
- Soft push button channel On / Off
- IrDA secure pairing to Headset, Microphone, Headphone
- FCC Part 15 Class B

RF Wireless Transmit Performance (HNB-C): HB-Tx
- (2) RF Transmit channels with automatic secure link selection
- RF Antenna coverage 40 foot radius / 80 foot diameter nominal X-Y-Z axis
- RF Frequency hopping modulation in 2.4GHz ISM band
- Signal-to-Noise >55dB
- Sensitivity >80dBm
- Audio Frequency 200Hz to 8KHz
- Audio Distortion THD <1% at 1KHz
- Mono or Stereo operation with HNB-A or Microphones
- FCC Part 15 Class B
- Visual status LED's (Blue / Red)
- Soft push button channel On / Off
- IrDA secure pairing to Headset, Microphone, Headphone
- Manual Switch option for 2nd language Translation (Channel 2)

Power Efficiency
<80% at 25W 4Ω, <85% @ 8Ω, <90% at 10W 4Ω, <95% @ 8Ω
Power Consumption
32W / 9.5 btu @ 120VAC, 130ma nominal in 'Sleep' mode.
Operating Temperature
-10° to 40°C, 14 to 104°F
Storage Temperature
-20° to 65°C, -4 to 149°F

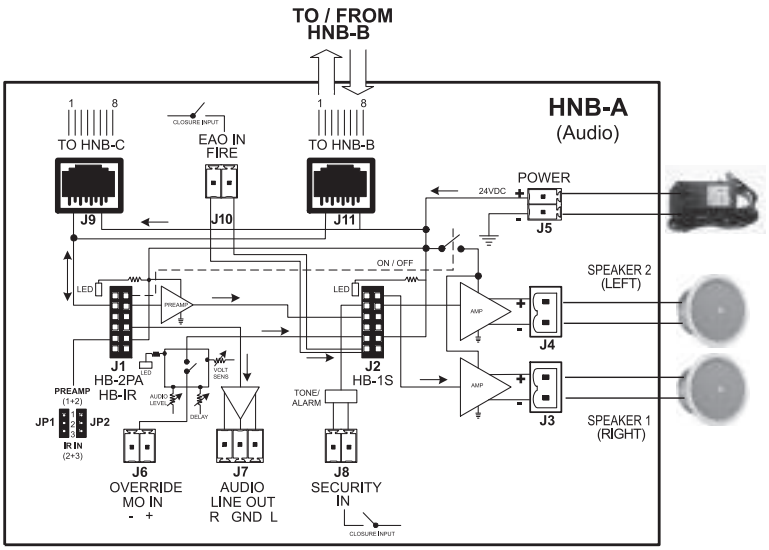
Input Connections
(3) Stereo/Mono inputs: 3-pin dockable, RCA and 3.5mm jack.
(1) 3-pin dockable Mic or Audio line level (Stereo/Mono).
(1) 2-pin dockable Security override closure (no polarity).
(1) 2-pin dockable EAO Fire override closure (no polarity).
(1) 2-pin dockable MO override input (+/-).
(1) HD-15 VGA/RGB (HB-V).
(1) 4-pin Mini DIN S-video (HB-V).
(1) RCA Composite video (HB-V).

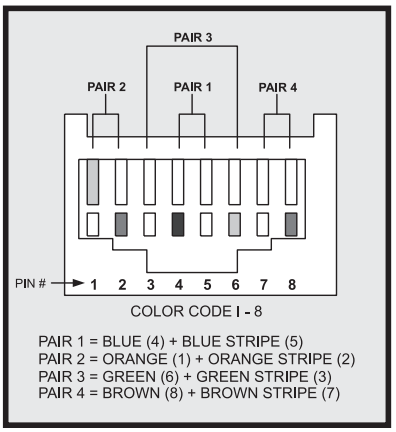
Output Connections
(2) 2-pin dockable Speaker (R+L).
(1) 3-pin dockable Audio line out (1V/600 Ohm).
(1) RJ45 video out (HB-V) and video input (HB-VRx).
(3) RJ45 Audio/Power input and output between HNB-A + B.
(1) IR LED remote 3.5mm jack (HB-IR).
(1) Headphone 3.5mm jack (HB-IR).
(1) HD-15 VGA/RGB, (1) Mini DIN S-video, (1) RCA C-video all with 12"+ cables (HB-VRx).
(1) HD-15 VGA buffered Monitor (HB-V).

Internal Connections
(2) 2x6 socket connectors (HNB-A, B, C backplane).
(2) 3-pin header/jumper option (HNB-A backplane).

Visual Indicators
- Front LED video source active (green).
- Power LED for all plug-in modules (green).
- Internal LED for MO active (amber).
- Internal LEDs for power to each channel (green).
- Video signal present LEDs: VGA, S and C video (green).
- 4-character, 7-segment LED display for system setup and control.
- IrDA pairing LEDs (Blue / Red)

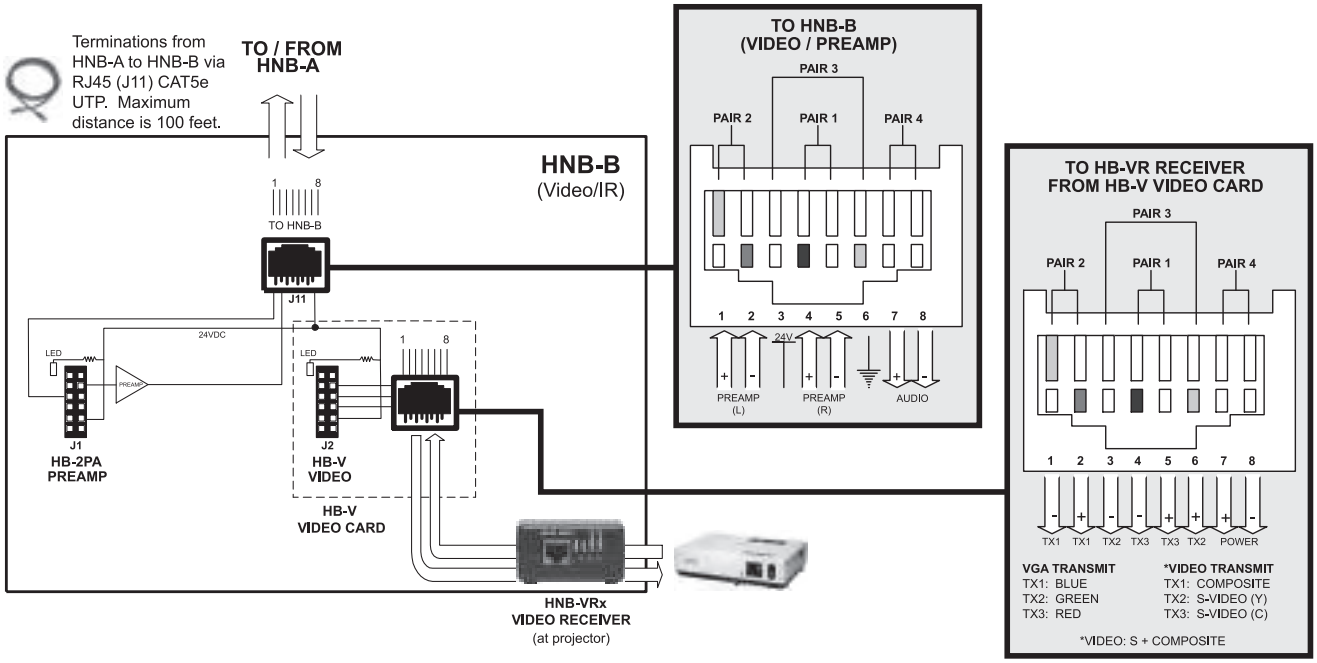
Material and Finish
18 AWG CRS steel / .047" nom. with zinc undercoat and white powder coat paint or CAD plate.
Dimensions: HNB-A, B, C units internal to EO box:
Length: 3.23" / 82mm, Width: 3.37" / 85.5mm, Height: 2.54" / 64.4mm
Dimensions: HNB-A, B carton:
Length: 5.5" / 139.7mm, Width: 7.5" / 190.5mm, Height: 4.6" / 116.8mm
Dimensions: HNB-C, C1 carton:
Length: 11.25" / 285.75mm, Width: 12.0" / 304.8mm, Height: 4.6" / 116.8mm
Weight:
HNB-A, B: Product:1.75 lbs., Shipping: 2.25 lbs.
HNB-C, C1: Product: 2.0 lbs., Shipping: 2.5 lbs.



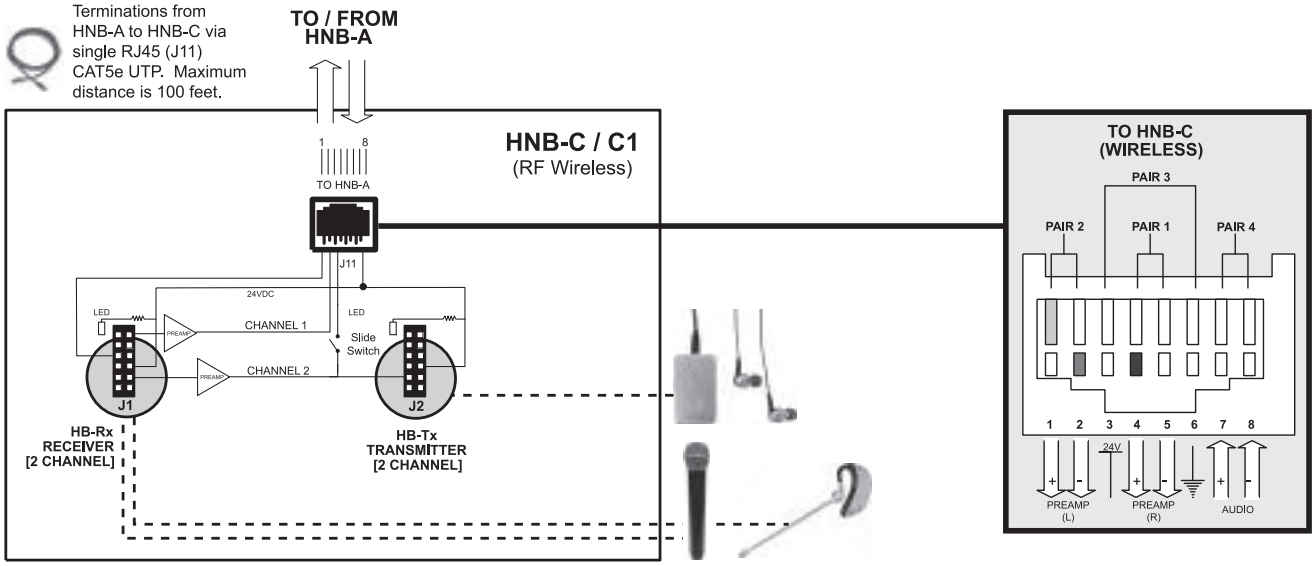

PAIR 3
PAIR 2
PAIR 1
PAIR 4
PIN # 1 2 3 4 5 6 7 8
COLOR CODE I - 8
PAIR 1 = BLUE (4) + BLUE STRIPE (5)
PAIR 2 = ORANGE (1) + ORANGE STRIPE (2)
PAIR 3 = GREEN (6) + GREEN STRIPE (3)
PAIR 4 = BROWN (8) + BROWN STRIPE (7)

Color Codes for RJ45 Connectors

Terminations from HNB-A to HNB-B via RJ45 (J11) CAT5e UTP. Maximum distance is 100 feet.

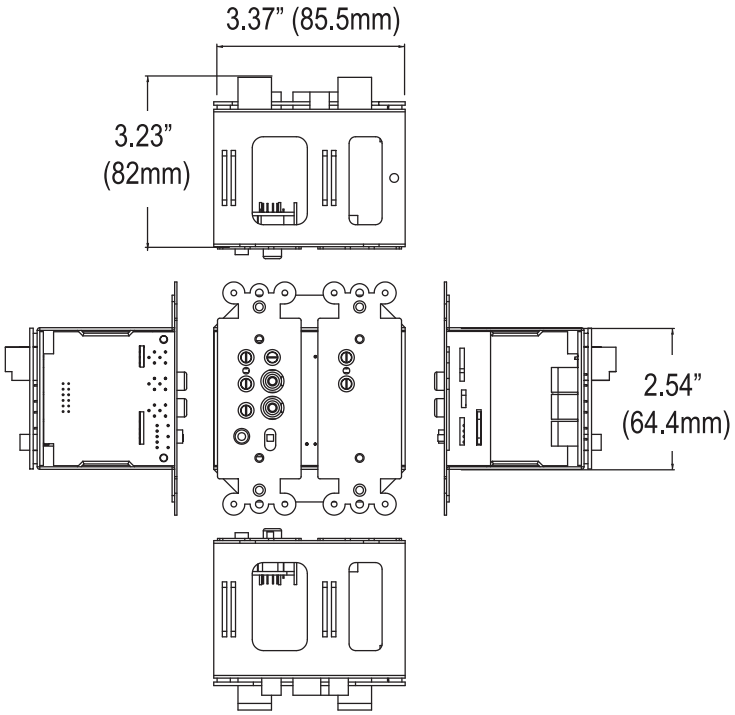


Terminations from HNB-A to HNB-C via single RJ45 (J11) CAT5e UTP. Maximum distance is 100 feet.



HNB-A, HNB-B, HNB-C

Dimensions are the same for HNB-A,HNB-B and HNB-C
(shown without Decora wall plate)



Installation Benefits:

- HNB units can be located up to 100 feet from each other connected by standard CAT5e cable.
- A *single* 24VDC/2.A power supply is used for each HNB-A, HNB-B and HNB-C system.
- HNB-C / C1 is ideally positioned 48" from the floor for ease in 'pairing' wireless accessories that require front panel access to push buttons for pairing activation.

RF Wireless accessories included with HNB-C

HB-TM1 Teacher headset (TM2 / TM3)

- Ergonomic - Robust, Over-ear (R-L), lightweight, flexible extended boom mic with 180° swivel
- Lithium-polymer long life battery with (6-8) hour talk time, (90) minute fast recharge nominal
- IrDA secure link 'push button' pairing in seconds (<30 seconds)
- Visible status Blue LED (On/Off, battery life)
- Audio latency less than 2msec
- Signal to Noise >60dB
- Low power consumption supporting 6-8 hour operation
- Compatible to all HNB-C or HNB-C1 with HB-Rx module
- DOE Energy Star battery charger (120VAC with Mini-USB)

HB-SM1 Student Hand-held microphone

- High performance dynamic microphone 100Hz-15kHz
- RF transceiver is data bidirectional and is frequency-agile
- Signal to Noise >60dB
- Audio latency less than 2msec
- Low power consumption supporting 6-8 hour operation
- Utilizes 24-bit DDS (Direct Digital Synthesizer) ultra-fast secure lock synthesizer
- IrDA secure link 'push button' pairing in seconds (<30 seconds)
- 6-8 hours talk time with (90) minute nominal fast recharge
- Compatible to all HNB-C or HNB-C1 with HB-Rx module
- (3) internal Ni-MH AAA rechargeable batteries
- DOE Energy Star battery charger (120VAC with Mini-USB)

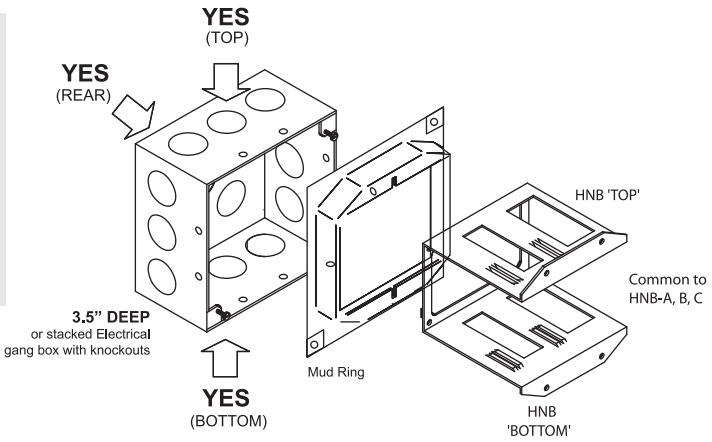
HB-Ru Student ADA receiver with headphone

- RF transceiver is bidirectional data and frequency-agile
- Mono or stereo operation
- Channel selection slide switch and volume control
- IrDA secure link 'push button' pairing in seconds (<30 seconds)
- Unlimited number of 'paired' units per HNB / per room
- 3.5mm input jack for Headphones, compatible with 'HAC' or iPOD type headphones
- Lithium-polymer long life battery with (6-8) hour talk time, (90) minute fast recharge nominal

'HNB' (A, B, C) INSTALL WITH CONDUIT OR CLAMP CONNECTORS TO ELECTRICAL GANG BOX

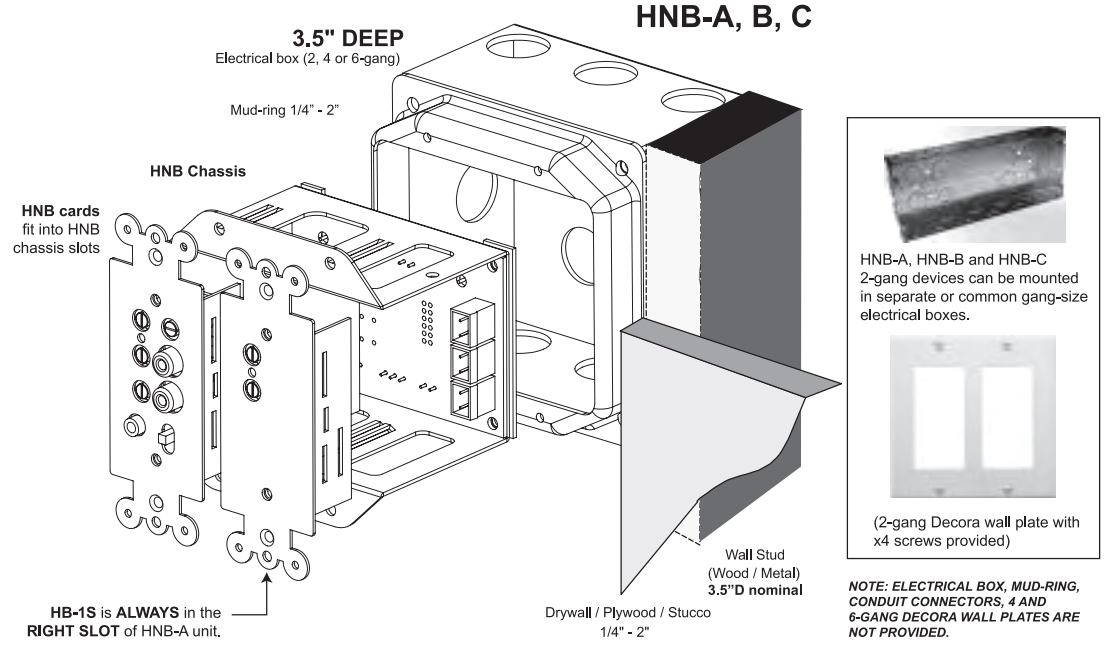
Install Note: HNB-C should be installed 48" from the floor (or lower) to insure ease of 'pairing' wireless headsets, micro-phones and receivers.

Install Note: HNB-A, B, C are easily interconnected by ONE CAT5e cable up to 100 FEET between boxes!



IMPORTANT NOTE:
When using conduit and/or strain relief 'Clamp' connectors for wiring to / from the HNB™, **DO NOT CONNECT TO THE SIDE KNOCKOUTS** of the electrical box.

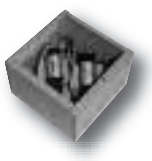
Use top, bottom or rear knockouts in a DEEP box.



Mounting Accessories (by others) - Determine which accessories will be required

Electrical Outlet Box:	4" Square x 3.5" DEEP is required for HNB-A, B, or C units. See RACO (www.hubbell-raco.com) models; #255 or #256 (or equivalent) for UL / NEMA rated box. You may "stack" electrical boxes or utilize appropriate Mud-ring to achieve 3.5" DEEP within the electrical box (refer to Raco #781 or #795 at 1.25" – 1.5"). Depending upon the AHJ or local building code you may utilize a 2-gang 'LVF' (low voltage frame) for Class 2 wiring devices.
Mud Ring:	4" square / 2-gang opening from 1/4" to 2.0" as needed to match wall or ceiling construction (see Electrical Outlet box above).
Conduit:	EMT, rigid or flex conduit may be required, for ceiling or wall installations, to meet local building codes or authority having jurisdiction (AHJ) requirements. NOTE: CONDUIT MUST ENTER THE E.O. BOX PER DIAGRAM (above) FOR PROPER FIT.
HNB Wiring:	HNB Speaker Wiring: 16-18 AWG twisted pair stranded cable. HNB-A, B, C interconnection: CAT5e cable meeting UL1661/1685, ISO/IEC 11801, TIA/EIA 568B, IEEE 1202, NEC 725-800, CSA FT-4 for in-wall or ceiling use to meet local building code requirements.
Ceiling Support:	In-ceiling installation MUST have adequate HNB™ support above the suspended ceiling grid system and needs to follow local building codes and utilize a hanger assembly such as Erico/CADDY UL listed models 512HD or 512HDXT or equivalent.
Electrical Outlet Box:	Codes may require the power supply be mounted in a 4-gang standard or plenum E.O. box (RACO #943 or equivalent).

Optional Impedance Matching Transformer - for use with 25V-70V speakers



HNB-70V2X has high performance 30W matching impedance transformers capable of driving 25V or 70V speakers. Ready-to-install assembly is housed in a metal UL-CUL approved electrical junction box with ¾" – 1" electrical knockouts on all (4) sides with grounding screw, top cover plate with corrosion resistant powder coat grey paint and comes with electrical wire nuts for 16-18 AWG stranded cable connections. The HNB-70V2X two-channel transformer is ordered separately.